

Exercise 1 You and your friend decide to have a bike race. Your speed is 16 kilometers per hour, and your friend's is 20 kilometers per hour. Your friend is faster than you are, so they give you a head start of 2 kilometers.

Let $f(x)$ be a linear function expressing the distance (in kilometers) you travel, and $g(x)$ be a linear function expressing the distance (in kilometers) your friend travels.

- (a) One of the following graphs represents $f(x)$ and the other represents $g(x)$.
The graph representing $f(x)$ is

Multiple Choice:

- (i) Graph A.
- (ii) Graph B. ✓

- (b) A linear equation for the distance you travel is $f(x) = \boxed{16x + 2}$.

- (c) A linear equation for the distance your friend travels is $g(x) = \boxed{20x}$.

- (d) If the race is 5 kilometers long, who will win?

Multiple Choice:

- (i) You ✓
- (ii) Your friend
- (iii) It will be a tie

- (e) If the race is 10 kilometers long, who will win?

Multiple Choice:

- (i) You
- (ii) Your friend
- (iii) It will be a tie ✓

- (f) If the race is 20 kilometers long, who will win?

Multiple Choice:

- (i) You
- (ii) Your friend ✓
- (iii) It will be a tie